

Original Research Article

Diagnosis of Deaths in Initial Hours in Medicine Ward in a Tertiary Care Hospital of Bangladesh

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ABSTRACT

Introduction: The increasing number of acute medical admissions to major teaching hospitals over the past years has resulted in increased number of undiagnosed hospital deaths. In Dhaka Medical College Hospital, about 2.57% patient death occurred in the Department of Medicine in the year 2010 as per the year book but the actual number is probably higher. Due to many contributing factors etiology of most of these early deaths remain a mystery and there is an urgent need to consider these deaths. This study is aimed to analyze the deaths occurring in the first 48 hours into hospital admission in the adult medicine ward.

Materials and Methods: A hospital based observational study was conducted at adult inpatient department of medicine of Dhaka Medical College Hospital from March 2012 to August 2012. All adult (>18 years) Patients admitted in Dhaka Medical College Hospital who died within 48 hours after admission were included in the study.

Results: The result shows that cerebrovascular disease (CVD) or stroke, Diabetes mellitus & its complications such as diabetic ketoacidosis, chronic kidney diseases, encephalitis, hypertensive heart diseases & its complications were the leading causes of death in our medical ward. About 20% of the deaths occurred in the age group below 40 years, which is the most economically productive segment of the society. This has negative implications for the development of the nation. Bangladesh is still a developing country where a health care facility to all populations especially in remote areas is limited. The socio-economic status and many human diseases are as comparable with African countries. CVD is the most common cause of admission followed by infective diseases such as COPD, CLD, pneumonia, enteric fever, tuberculosis etc.

Conclusion: These common diseases can be prevented by taking anti-smoking measures, vaccination against HBV & HCV and TB, by improving indoor pollution and awareness of people.

Key words: Deaths, Tertiary hospital, Dhaka, Bangladesh, Medicine ward

INTRODUCTION

The increasing number of acute medical admissions to major teaching hospitals over the past years has resulted in

increased number of undiagnosed hospital deaths. The ageing population, improved survival rate of patients with multiple chronic medical conditions and increased

patient may all contribute to the rapidly increasing number of complex medical admissions. [1-3] Rising longevity rates and falling fertility rates will result in a rising elderly dependency ratio in Bangladesh. [12] The transition of the world in terms of technology, nutrition, and healthcare has seen the transition in disease pattern as well. A gradual decline in deaths from infectious disease and emergence of chronic medical illness as the leading cause of death has been seen. [4,5] The projection that by the year 2020 non communicable disease will equal the communicable disease in terms of mortality is probably coming true. [6,7] In the year 2010, overall mortality in medical college hospitals in Bangladesh was as high as 35% according to a report published by DGHS⁸. Among the top causes of mortality, cardio-respiratory failure accounts for almost 9.74% of these deaths. [8] It is a vague term and in many instances where diagnosis is not complete, it is mentioned as a cause of death. In Dhaka Medical College Hospital, about 2.57% patient death occurred in the Department of Medicine in the year 2010 as per the year book but the actual number is probably higher. Due to many contributing factors etiology of most of these early deaths remain a mystery and there is an urgent need to consider these deaths. The analysis of these deaths will provide a valuable insight so in future these situations can be recognized early and hopefully, at least some of these can be avoided. A large proportion of Bangladesh's health problems are general and preventable. Specialized tertiary care is needed for about 10% of our health problems. In Bangladesh, health-seeking behavior is still generally poor with patients presenting in advanced stages of disease conditions. Despite the government serious commitment to deliver health facilities to doorsteps of urban people through innovative approaches, the utilization of health care services is far below. [9] Dhaka Medical College Hospital (DMCH) the major referral center in Bangladesh. It was noted that most patients who die in the

hospital's medical wards present late, do not have adequate financial support or are often referred late from other health facilities. For these reasons, this study is aimed to analyze the deaths occurring in the first 48 hours into hospital admission in the adult medicine ward.

MATERIALS AND METHODS

A hospital based observational study was conducted at adult inpatient department of medicine of Dhaka Medical College Hospital from March 2012 to August 2012. All adult (>18 years) Patients admitted in Dhaka Medical College Hospital who died within 48 hours after admission were included in the study.

The cases were offered with informed written consent process by the designated Research Assistant (RA)/co-investigators in the printed case record form (CRF). Patient's medical records were subjected to a detailed clinical evaluation by one of the investigators. Laboratory tests helped to confirm the diagnosis were also recorded.

Each attendant was informed about the aims, methods, and anticipated benefits and of the study. After that consent was taken. The attendant had liberty to abstain from participation in the study or free to withdraw from the study. The CRF was filled out at hospital. If death occurred at a late hour, then death record form and case history file was utilized for the necessary information. A pre-tested questionnaire was used. The principal investigator frequently checked all the recorded data. The principle investigator visited frequently to observe the data collection and verified randomly selected cases.

Data was entered, cleaned and analyzed using statistical methods (SPSS). Kruskal-Wallis and Wilcoxon rank sum tests was used to explore the association among variables.

Ethical clearance was obtained from the ethical committee of Dhaka Medical College. Prior to study enrollment, written informed consent was obtained from each

participating patient in conformity with the revised declaration of Helsinki. After giving all this information, verbal informed consent was obtained from the patient/guardian by signature.

RESULTS

Table 1 below shows the socio-demographic status of the patients. First of all gender were divided as 59% of female patient and 41% of male patient. Almost all the patients were married (99%). In the occupation, 60% were found housewife, 12% were in service, 11% were unemployed, 5% were beggar and 13% were in unknown work. The last part, 20% patient ages were below or equal to 40 years, 30% patient were between the 41 to 60 years and 50% patient were more than 61 years.

Table 1: Distribution of Socio demographic profile of the deaths (n=100).

Variables	Percentage (%)
Gender	
Male	41.0
Female	59.0
Marital status	
Married	87.0
Unmarried	13.0
Occupation	
Housewife	49.0
Service	27.0
Unemployed	11.0
Beggar	1.0
Unknown	12.0
Age of Patients	
≤40 years	20.0
41-60 years	30.0
>61 years	50.0
Duration Death	
< 8 Hours of Admission	53
≥8 Hours of Admission	47

Table 2 displays presenting symptoms and/or disease and/or its complication(s), where 51% were observed unconsciousness during 1 to 72 hours, 29% complained fever during 1 to 60 days, 26% patient had respiratory distress during 4 to 72 hours length, 10% showed abnormal swelling during 1 to 30 days, 18% observed neurological deficit during 1 to 168 hours, 16% complained generalized weakness during 1 to 60 days, 18% showed disorientation between 3 to 72 hours, 16% complained Diabetic Mellitus (DM) during

2 to 120 months, 20% complained hypertension during 1 to 120 months, 8% complained CKD during 1 to 60 months. Lastly, less than or equal to 10% complained other diseases (vomiting, anuria, Diarrhea etc) as well as chest pain, convulsion, hematemesis and jaundice.

Table 2: Presentations with symptoms and/or disease and/or its complication(s) (n=100)

Name of symptoms and/or disease and/or its complication(s)	Percentage (%)
Unconsciousness	51.0
Fever	29.0
Respiratory Distress	26.0
Hypertension (HTN) and/or its complication(s)	20.0
Hemi paresis/Hemiplegic/Focal neurological deficit	18.0
Disorientation	18.0
Generalized weakness	16.0
Diabetic Mellitus(DM) and/or its complication(s)	16.0
Abdominal swelling	10.0
CKD	8.0
Convulsion/Seizure	6.0
Jaundice	4.0
Hematemesis/melaena	3.0
Chest Pain	1.0
Others(Vomiting, Anuria, Diarrhoea etc)	10.0

Table 3: Distribution of diagnosis of the Death confirmation with Major diseases reasons (ICD-10)

Variables	Percentage (%) of Patient received
Major diseases: reason of death(Multiple diseases)	
Diabetes mellitus & complications	15.0
Hemorrhagic stroke	15.0
Renal failure	15.0
Encephalitis	12.0
Ischemic stroke	11.0
Hypertensive heart disease & complications	11.0
Septicemia	6.0
Accidental poisoning/noxious substances	5.0
Acute Respiratory Distress Syndrome (ARDS)	4.0
Heart failure	4.0
Ischemic heart disease & complication(s)	3.0
Tuberculosis & complications	3.0
Meningitis	3.0
Others(Mention below)*	≤2.0

*[Malignancy (trachea, bronchus and lung), Malnutrition, Acute myocardial infarction, Hypertensive renal disease, pneumonia, Chronic lower respiratory disease, Chronic liver disease, Acute and rapidly developing nephritis, chronic glomerulonephritis]

Table 3 shows the major diseases as cause of death written in death note. 15% had Diabetes mellitus & complications, hemorrhagic stroke in 15% of patients and 15% patient had renal failure, 11% had hypertensive heart disease and 11% ischemic stroke, 6% of septicemia, 4% developed ARDS, and 4% had heart failure,

12% of encephalitis, 5% of accidental poisoning/noxious substance, 3% patient had tuberculosis & complications, 3% had meningitis and ischemic heart disease in 3% patients, less than 2% of others such as Chronic lower respiratory disease, chronic liver disease and so on.

Table 4 below shows the segment of death time of patients under study where 60% died within 8 hours, 31% died within 16 hours, 3% died within 24 hours and less than 3% died within 32, 40 and 48 hours.

Table 4: Patient death at different hours after admission

Shift	Percentage (%) of (Patient died)
Morning ¹ (8.00 am-2.30 pm): 8 hours	60.0
Evening ¹ (2.30 pm-9 pm): 16 hours	31.0
Night ¹ (9.00 pm-8am): 24 hours	3.0
Morning ² (8.00 am-2.30 pm): 32 hours	2.0
Evening ² (2.30 pm-9 pm): 40 hours	2.0
Night ² (9.00 pm-8am): 48 hours	2.0
Total	100.0

Table 5 shows the Laboratory Investigations done or advised for the study patient. At first, 66% patient tested CBC with ESR, CRP, 9% tested PBF, 49% tested Urine R/E test, 69% tested Serum creatinine, 76% tested Serum Electrolyte, 45% tested RBS, FBS, 2HABF, 2HAL, 2HAD, OGTT test, 31% tested ECG test, 6% tested USG of W/A, 17% tested blood test for malaria parasite, 41% tested CT scan (head/Chest/abdomen), 9% tested SGPT, 10% tested Echocardiography, 15% tested Acid blood gas analysis (ABG) and less than 2% tested other test such as CXR(P/A) view, HBsAg and so on.

Table 5: Laboratory Investigations done or advised

Laboratory Investigations	Percentage (%) of patient
CBC with ESR, CRP	66.0
PBF	9.0
Urine R/E	49.0
Serum Creatinine	69.0
Serum Electrolyte	76.0
RBS, FBS, 2HABF, 2HAL, 2HAD, OGTT	45.0
ECG	31.0
USG of W/A	6.0
Blood for Malaria parasite	17.0
CT scan(Head/chest/abdomen)	41.0
SGPT	9.0
Echocardiography	10.0
Acid blood gas analysis(ABG)	15.0
Others (Mention below) *	≤2.0

*|CXR (P/A) view, Serum Bilirubin, SGOT, Viral Marker: HBsAg, AntiHCV, AntiHBC, Anti HEV, Anti HAV, ICT for Malaria|

DISCUSSION

Our study showed that cerebrovascular disease (CVD) or stroke, Diabetes mellitus & its complications such as diabetic ketoacidosis, chronic kidney diseases, encephalitis, hypertensive heart diseases & its complications were the leading causes of death in our medical ward. 20% of the deaths occurred in the age group below 40 years, which is the most economically productive segment of the society. This has negative implications for the development of the nation. Historically, deaths from infectious diseases have been the major causes of death in developing nations of the world. [10] Recently, there are strong indications that death from infectious diseases are on the decline while, chronic medical diseases are increasingly being recognized as significant causes of morbidity and mortality. [11]

Factors affecting hospital mortality are many, over which hospitals and physicians have no control. In theory, however, mortality rates can be standardized to remove some of the effects of these factors to assess the actual quality of care in each hospital. [3] The poor economy in developing countries coupled with the absence of state – funded health care aid may rather predispose relatives to limit spending of available scarce resources in procuring Medicare for the elderly [4] and the very sick patients whose “soon expected” burial expenses may equally be demanding. [4] Some of the factors affecting mortality include: - age, sex, severity of principal diagnosis, types and complexity of co-morbidities, social and economic conditions of the patient and duration of hospital stay. About 94% of all deaths occurred on the first day of admission, rest 6% of all deaths by the second day. First-day death constitutes a significant portion of a hospital’s mortality rate even though hospitals can do little to prevent them. In our center, most of the patients are poor, and oftentimes present very late; this makes it very difficult to act swiftly as soon as they present since whatever action is taken is

dependent on their ability to provide the funds. Proper and timely referral is the ideal approach where a hospital cannot handle any case, either because it has no facilities to cater for the medical care needs of the patient or in case of a more chronic illness where skilled nursing facilities are required. The greatest challenge faced by our tertiary institutions is that most patients are referred late probably contributing to the high mortality seen in the first few days of admission. Persons aged >61 years and above constituted 50% of all admissions. This is in contrast with studies in Enugu with 7.2%, [4] and Canada with 15%. [5] In Enugu, the authors suggested the low incidence may be due to the “soon expected” burial which is equally demanding among other reasons. In the North, where majority of people bury their dead almost immediately and spend less on burial, it may well be the reason for the higher incidence of elderly admissions on our medical wards. In a study in Ibadan, most of the deaths resulted from cardiovascular diseases especially hypertension, 43.5% of them died in heart failure. [6] Junaid TA in an analysis of a 5-year autopsy data on Nigerians aged 31-60 years showed infective, cardiac and neoplastic diseases as major causes of mortality in this age groups. [7]

CONCLUSION

Bangladesh is still a developing country where a health care facility to all populations especially in remote areas is limited. The socio-economic status and many human diseases are as comparable with African countries. CVD is the most common cause of admission followed by infective diseases such as COPD, CLD, pneumonia, enteric fever, tuberculosis etc. These common diseases can be prevented by taking anti-smoking measures, vaccination against HBV & HCV and TB, by improving indoor pollution and awareness of people.

Developed countries have good medical audit mechanisms in place that check the clinical competence of

practitioners and health care facilities to protect the interest of the patients. In Bangladesh, the issue of continuing medical education (CME) is the exclusive preserve of health care professionals in tertiary centers. There is an urgent need to institutionalize more continuing medical education (CME) by the authorities concerned. Public enlightenment aimed at positively changing the health-seeking behavior of Bangladeshis should be encouraged. Strict disciplinary measures should be taken against any referring practitioner or health facility and strict adherence to statutory medical ethics should reduce the mortality rates seen in our tertiary healthcare centers.

Conflict of Interest: None

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REFERENCES

1. Department of Medicine, Dhaka Medical College Hospital. Year Book Annual Report 2011. Dhaka, Bangladesh 2011:34
2. Schofield DJ, Earnest A. Demographic change and the future demand for public hospital care in Australia, 2005 to 2050. *Aust Health Rev* 2006; 30: 507-515.
3. Gray LC, Yeo MA, Duckett SJ. Trends in the use of hospital beds by older people in Australia: 1993–2002. *Med J Aust* 2004; 181: 478-481
4. Sen K, R Bonita. Global Health Status: Two Steps Forward, one step Backward. *Lancet* 2000; 356(9248): 2195-2195
5. S. Yousuf, S Reddy, S Ounupu, S Anand. Global Burden of Cardiovascular Disease: Part: 1 General Considerations, Epidemiologic Transition, Risk Factors And Impact of Urbanization. *Circulation*; 104: 2746-2753
6. Murray CJL, Lopez A D. (1996). *The Global Burden of Disease*. Boston, Mass: Harvard School of Public Health.

7. Yach D, Hawkes C L, Gould, Hofman KJ. The global Burden of Chronic Disease: Overcoming impediments to prevention and control. *JAMA* 2004;291: 2616-2622.
8. Mortality Profiles in hospitals of Bangladesh 2009. Available at www.dghs.gov.bd.
9. Kabir, R., and Khan, H. T. A. (2013). Utilization of antenatal care among pregnant women of urban slums of Dhaka city, Bangladesh. *IOSR Journal of Nursing and Health Sciences*, 2(2); 15-19.
10. Gwatkin, D.R, S. Rutstein, K. Johnson, R.P. Pande, and A. Wagstaff. (2000). Socio-economic Differences in Health, Nutrition and Population, HNP Poverty Thematic Group of the World Bank.
11. Yusuf S, Reddy S, Ounpuu S, Anand S.(2001). Global burden of cardiovascular diseases: Part I: general considerations the epidemiologic transition risk factors and impact of urbanization. *Circulation*. 104:2746–2753.
12. Kabir, R., Kabir, M., Gias Uddin, M.S., Ferdous, N., and Chowdhury, M.R.K.(2016). Elderly population growth in Bangladesh: Preparedness in Public and Private Sectors. *IOSR Journal of Humanities and Social Science*, 21(8):58-73.

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